



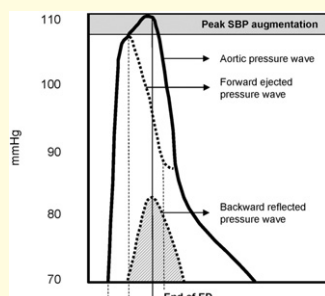
JACC

DECEMBER 7, 2010
VOLUME 56, No. 24

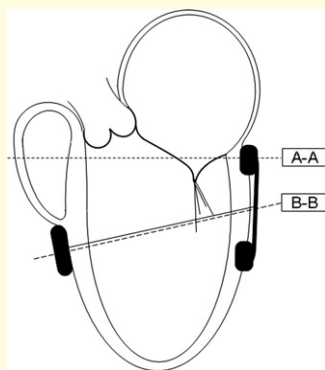
JOURNAL of the AMERICAN COLLEGE of CARDIOLOGY

Inside This Issue

STATE-OF-THE-ART PAPER



CLINICAL RESEARCH



STATE-OF-THE-ART PAPER

Vascular Pathophysiology and Heart Rate

1973

Florian Custodis, Stephan H. Schirmer, Magnus Baumbäkel, Gerd Heusch, Michael Böhm, Ulrich Laufs

This review by Custodis and colleagues summarizes the current literature and the open questions regarding the physiologic and pathophysiologic effects of heart rate on the vessel wall and the associated molecular signaling. Epidemiological evidence shows that resting heart rate is associated with cardiovascular morbidity and mortality. In animal studies, higher heart rate is associated with vascular oxidative stress and endothelial dysfunction. Experimental studies have shown a benefit with either pharmacological or interventional heart rate reduction, but prospective clinical data are needed to determine if heart rate slowing can reduce cardiovascular events in humans.

CLINICAL TRIALS

Coapsys Device Compresses the Mitral Annulus and Improves Outcomes in Patients With FMR

1984

Eugene A. Grossi, Nirav Patel, Y. Joseph Woo, Judith D. Goldberg, Charles F. Schwartz, Valavanur Subramanian, Ted Feldman, Robert Bourge, Norbert Baumgartner, Christopher Genco, Scott Goldman, Marco Zenati, J. Alan Wolfe, Yugal K. Mishra, Naresh Trehan, Sanjay Mittal, Shulian Shang, Todd J. Mortier, Cyril J. Schweich, Jr, for the RESTOR-MV Study Group

Functional mitral regurgitation (FMR) occurs when ventricular remodeling impairs valve function; Coapsys (Myocor, Inc., Maple Grove, Minnesota) is a ventricular shape change device that compresses the mitral annulus and reshapes the ventricle via posterior and anterior epicardial pads connected by a transventricular chord. The RESTOR-MV (Randomized Evaluation of a Surgical Treatment for Off-Pump Repair of the Mitral Valve) trial randomized patients with FMR and coronary disease to either coronary artery bypass surgery with mitral ring annuloplasty or the Coapsys device. Coapsys provided a greater reduction in left ventricular end diastolic volume and a survival advantage at 2 years. This trial validates the concept of ventricular reshaping in patients with FMR.

ANTIPLATELET THERAPY AND CORONARY SURGERY**Measuring Clopidogrel Responsiveness Can Predict Bleeding Risk With OPCABG 1994**

Young-Lank Kwak, Jong-Chan Kim, Yong-Seon Choi, Kyung-Jong Yoo, Young Song, Jae-Kwang Shim

Clopidogrel increases the risk of perioperative bleeding in patients undergoing coronary artery bypass grafting and also has significant interindividual variability. Kwak and colleagues correlated the percent platelet inhibitory response to clopidogrel by modified thromboelastography with bleeding and transfusion requirements following off-pump coronary artery bypass graft (OPCABG) surgery. A total of 100 patients receiving clopidogrel within 5 days of OPCABG were prospectively enrolled. Blood loss was higher and there was an 11-fold increased need for transfusion in patients in the highest tertile of platelet inhibition compared with the lowest tertile. Platelet inhibitory response to clopidogrel, regardless of the timing of last clopidogrel exposure, predicts bleeding risk after OPCABG.

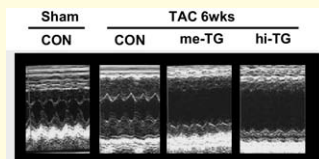
Editorial Comment: Gilles Montalescot, Jean-Sébastien Hulot, Jean-Philippe Collet, p. 2003

CAROTID INTIMA-MEDIA THICKNESS AND EVENTS**Meta-Analysis Shows No Correlation Between Carotid IMT Regression and Cardiovascular Events****2006**

Pierluigi Costanzo, Pasquale Perrone-Filardi, Enrico Vassallo, Stefania Paolillo, Paolo Cesarano, Gregorio Brevetti, Massimo Chiariello

Increases in carotid intima-media thickness (IMT) are associated with a higher risk of coronary heart disease (CHD) and cerebrovascular (CBV) events; however, it is undetermined if IMT regression reduces the risk of these events. Costanzo and colleagues performed a meta-regression analysis to test this relationship. A total of 41 trials enrolling 18,307 participants were included. Despite significant reduction in CHD, CBV events, and all-cause mortality induced by active treatments, there was no significant relationship between IMT regression and these events. Regression or slowed progression of carotid IMT, induced by drug therapies, is not predictive of cardiovascular events.

PRE-CLINICAL RESEARCH



YEAR IN CARDIOLOGY SERIES

(continued)

A-32

PRE-CLINICAL RESEARCH

Myocardial Remodeling Is Regulated by Phosphodiesterase Type 5

2021

Manling Zhang, Eiki Takimoto, Steven Hsu, Dong I. Lee, Takahiro Nagayama, Thomas Danner, Norimichi Koitabashi, Andreas S. Barth, Djabida Bedja, Kathleen L. Gabrielson, Yibin Wang, David A. Kass

Zhang and colleagues explored the relationship between cardiomyocyte phosphodiesterase type 5 (PDE5) expression and maladaptive remodeling. Mice with doxycycline controllable myocyte-specific PDE5 gene expression were generated and were then subjected to sustained pressure-overload via aortic banding. Heart function was normal at baseline, but after aortic banding, transgenic hearts developed more eccentric remodeling, maladaptive molecular signaling, depressed function, and amplified fibrosis compared with nontransgenic mice. High-PDE5 mice received doxycycline to suppress the excess PDE5 expression/activity after developing a cardiomyopathy, and showed normalization of the maladaptive remodeling. These data support a primary role of myocyte PDE5 regulation in myocardial pathobiology.

Editorial Comment: Roger J. Hajjar, Fadi G. Akar, p. 2031

YEAR IN CARDIOLOGY SERIES

The Year in Echocardiography

2033

Arthur E. Weyman

Weyman reviews several papers published in the last year regarding echocardiography. The role of echo Doppler techniques in the evaluation of diastolic function, particularly the accuracy of the E/e' ratio in assessing left atrial pressure, was the subject of several papers and was found to be accurate in only certain subsets of patients. In the area of valvular heart disease, 3-dimensional (3D) echocardiography studies visualized mitral leaflet morphologic adaptation to chronic tethering. New insights were also reported in a variety of other areas including the impact of contrast echo on clinical decision making in patients with technically difficult studies, 3D speckle tracking, and the utility of delayed diastolic relaxation as a marker of ischemia.